

# Notice of Allowability

Application No.

10/656,091

Examiner

Michael P. Nghiem

Applicant(s)

BECK ET AL.

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendments filed on 20 April 2006 and 19 January 2006.
2. ☒ The allowed claim(s) is/are 22-29,31-77,79-87,90-106 and 108-118.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given by Mr. Leonard Kalinowski during a telephone interview on June 28, 2006.

The application has been amended as follows:

Replace Claim 77 with the following:

-- 77. (Currently Amended) A method of controlling the performance of a fluid system wherein at least first and second centrifugal pumps are connected in parallel and are used for transferring fluid within said fluid system and the first and second centrifugal pumps are coupled to first and second electric motors, respectively, the method comprising the steps of:

determining values of speed input to each of the centrifugal pumps, including the steps of measuring values of electrical voltages applied to the first and second motors and currents drawn by the first and second motors and using the measured values of electrical voltages applied to the first and second motors and currents drawn by the first and second motors to calculate for the first and second centrifugal pumps

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values for at least one of the parameters selected from the group consisting of motor torque and motor speed;

determining values of pump flow rate of each of the centrifugal pumps;

using the values of speed input and pump flow rate to calculate the efficiency of each centrifugal pump;

using efficiency and flow of each centrifugal pump to calculate the speed for each centrifugal pump which would result in the most efficient operation of the fluid system;

using the calculated speed for each centrifugal pump to produce command signals; and

using the command signals to control the speed of each centrifugal pump. --

Cancel Claim 78.

In Claim 100:

Line 7, before "performance", replace "system" with – well --.

Line 9, before "performance", replace "system" with – well --.

In Claim 105:

Line 2, before "performance", replace "system" with – well --.

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Replace Claim 109 with the following:

-- 109. (Currently Amended) A pump control system for controlling a centrifugal pump for transferring fluid within a fluid system, the pump control system comprising:

means for determining values representing the performance of the centrifugal pump;

means for using the values representing the performance of the centrifugal pump for determining values representing the performance of the fluid system;

means for using at least one of the fluid system performance values for calculating a feedforward signal by predicting a value of mechanical input to the centrifugal pump when operating with a selected centrifugal pump performance value at a setpoint value; and

means for calculating from the feedforward signal one or more command signals for controlling the speed of the centrifugal pump. --

Replace Claim 114 with the following:

-- 114. (Currently Amended) A pump control system for controlling a centrifugal pump for transferring fluid within a gas or oil well, the pump control system comprising:

means for determining values representing the performance of the centrifugal pump;

means for using the values representing the performance of the centrifugal pump for determining values representing the performance of the well;

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means for using at least one of the well performance values for calculating a feedforward signal by predicting a value of mechanical input to the centrifugal pump when operating with a selected centrifugal pump performance value at a setpoint value; and

means for calculating from the feedforward signal one or more command signals for controlling the speed of the centrifugal pump. --

In Claim 116:

Line 1, delete first instance of "means for".

In Claim 117:

Line 1, delete first instance of "means for".

### ***Reasons For Allowance***

Please see Applicant's Remarks filed on April 20, 2006 and January 19, 2006 for reasons for allowance.

### ***Contact Information***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Nghiem whose telephone number is (571)

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272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MICHAEL NGHIEM  
PRIMARY EXAMINER

Michael Nghiem

June 29, 2006